September 12, 2016
Executive Secretary
Iowa Utilities Board
1375 E. Court Avenue, Room 69
Des Moines, IA 50319-0069

Re: Docket No. TF-2016-0321

Dear Members of the Iowa Utilities Board,

The board clearly stated in the Distributed Generation docket (NOI-2014-0001) that a principal goal of the docket is to expand renewable energy in Iowa. I am encouraged by this decision but do not feel that Alliant/IPL's proposal fits either the letter or the spirit of the Board's July 19th order.

Alliant is capping the size of a distributed energy system that is eligible for net-metering based on the customer's one-time highest demand. This makes little sense. There can be two customers with the same annual energy needs but with widely different peak demands. Why would one customer be allowed to install a greater amount of PV (eligible for net-metering) than the other? Worse, for customers without a demand charge (which includes all General Service and Residential customers) Alliant/IPL has chosen to use an aggregate demand based on the Load Factor of an entire customer class. When taken in aggregate, any group of customers will have a much higher Load Factor than any of its individuals.

In Alliant/IPL's example in their September proposal showed that residential customers have an *aggregate* Load Factor of 25%. The average Iowa home has an annual electric use of 10,692 kWh per year (source: EIA, https://www.eia.gov/tools/faqs/faq.cfm?id=97&t=3). Alliant/IPL's methodology using the aggregate load factor for the entire customer class (25%), would cap the net-metering at system of 4.9 kW. This is enough to provide 60% of their annual energy usage, assuming no shading. This is an artificial cap created by Alliant/IPL to limit customer's access to net-metering.

Alliant/IPL goes through some mathematical backflips to limit residential customers allowed net-metering capacity to 60% of their overall annual electric usage. If we take Alliant/IPL's initial argument at face value and limit system sizes on the *actual* peak load of a customer, residential customers would be allowed to net-meter far more than their actual annual energy usage.

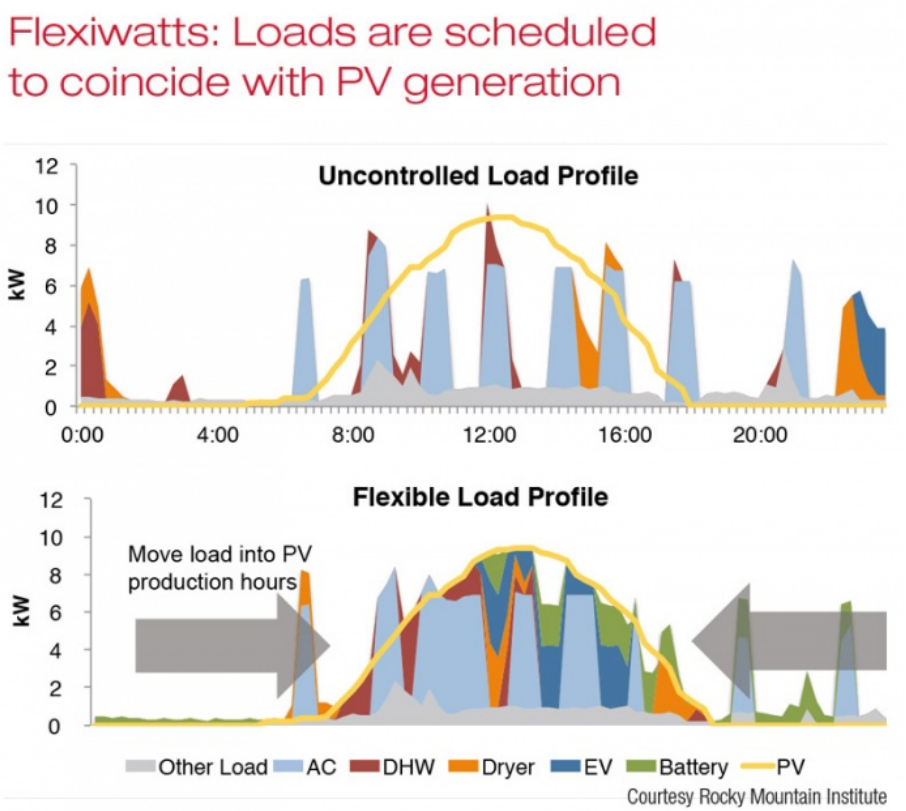
An example using the average Iowa home with an annual electric use of 10,692 kWh per year:

- If the home has a 5 ton AC unit (not uncommon at all), the AC unit alone would give the home a peak demand of 18.4 kW (5 tons cooling at 12 EER is 17.6 kW, assume another 750w for the furnace fan). The AC and furnace fan alone in this example give the individual home a load factor of 7%.
- Using a more realistic load factor of 7% would raise the net-metering cap to a system of 17.4 kW. This is double the capacity needed to offset 100% of annual energy usage for the home.

I encourage the board to request that Alliant/IPL follow the Board's directive and keep net metering in place with the few changes the board requested in their July 19th order.

I also encourage the board to use the time of this pilot to set a new solar rate code fair to all parties that will take effect at the end of the three year pilot period. Net-metering is a somewhat blunt instrument to set the price of solar. At low adoption rates the net value of solar is higher than or equal to the customer's retail rate. At higher levels of adoption, solar may become less valuable. I hope that Iowa can conduct a value-of-solar study that takes all the costs and benefits of solar into account.

One thing I would caution against is to create a rate code for solar that encourages or forces DG customers to self-consume their energy produced on site as much as possible. It may be more beneficial for the grid system as a whole for customers to sell back energy during the day, when the grid is at or near its peak. If customers are adequately compensated they can sell the more valuable daytime energy and purchase energy at night when wholesale rates are low.



Rate codes and tariffs (and distributed energy buy back policies) should send market signals to customers use energy when wholesale prices are low and to conserve energy when the grid is reaching peak usage. There are technologies that allow customers to shift their energy load based on when it is cheaper to use energy. Electric cars may be a large new load on the grid and billing rates may determine if those cars are charged at night (to the benefit of all) or are plugged in to their owners solar panels even if the grid is at peak demand.

Above is a graphic from Rocky Mountain Institute that shows how homeowners could shift their load to match their solar production. The same load-shifting technologies could also be implemented to shift loads to periods of lower grid energy usage. Rate codes will determine if and how customers can shift their load, and whether the load shifting can be helpful or not to the grid as a whole.

Thank you for the opportunity to comment on this docket.

Sincerely,
Joel Zook
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Decorah, IA